

Carbon Dioxide Collection and Pressurization Technology, Phase I

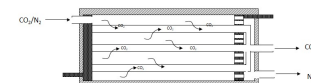
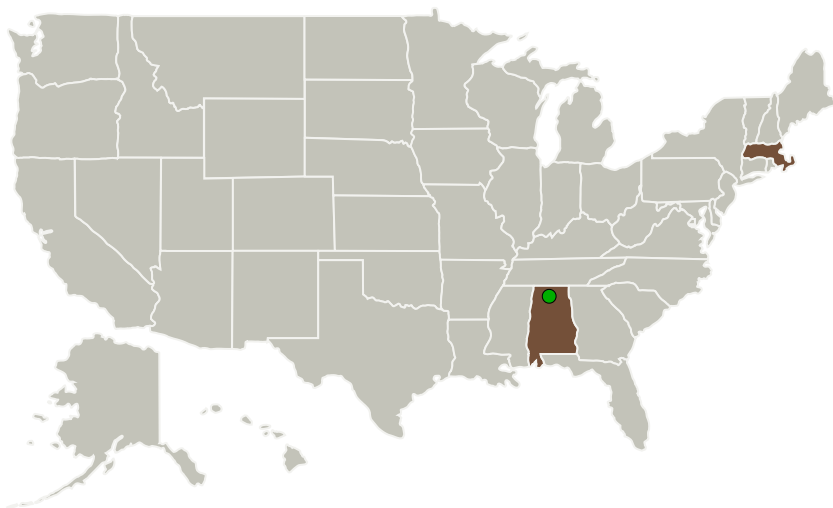
Completed Technology Project (2014 - 2014)



Project Introduction

Reactive Innovations, LLC, proposes a Phase I SBIR program to develop a compact and lightweight electrochemical reactor to separate and pressurize carbon dioxide from the Martian atmosphere. Our approach builds on recently developed technology in our laboratory and others in selective separation based on electrochemically modulated facilitated transport. This process electrochemically pumps the bound CO₂ across a membrane separator effectively concentrating and pressurizing it in a separate process stream.

Primary U.S. Work Locations and Key Partners



Carbon Dioxide Collection and Pressurization Technology Project Image

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Organizations Performing Work	Role	Type	Location
Reactive Innovations, LLC	Lead Organization	Industry	Westford, Massachusetts
● Marshall Space Flight Center (MSFC)	Supporting Organization	NASA Center	Huntsville, Alabama

Primary U.S. Work Locations

Alabama	Massachusetts
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Project Transitions



June 2014: Project Start

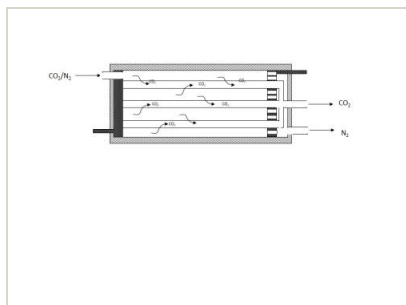


December 2014: Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/140520>)

Images



Project Image

Carbon Dioxide Collection and Pressurization Technology Project Image

(<https://techport.nasa.gov/image/132338>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Reactive Innovations, LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Karen Jayne

Co-Investigator:

Karen Jayne

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Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX07 Exploration Destination Systems
 - └ TX07.1 In-Situ Resource Utilization
 - └ TX07.1.2 Resource Acquisition, Isolation, and Preparation

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System